WHAT IS CLAIMED IS:

1. A method of establishing virtual circuit paths at a first node in a packet-switched network, the method comprising:

receiving, at the first node, port connection information associated with switches in the network;

determining at least one virtual circuit path to at least one switch in the network based on the received port connection information; and

determining, for the at least one virtual circuit path, a first output port of the first node and an outgoing virtual circuit identifier (VCI_{out}) to use to send a packet from the first node to a destination node in the network.

2. The method of claim 1, wherein the port connection information comprises port numbers for the switches in the network.

3. The method of claim 1, wherein the outgoing virtual circuit identifier (VCI_{out}) is determined as a function of a number of hops (h) between the first node and the destination node.

4. The method of claim 3, wherein the outgoing virtual circuit identifier (VCI_{out}) for VC table entry b + e, for each value of h, is determined by:

$$VCI_{out} = 2 + 4^1 + \ldots + 4^{h-2} + ((e-b) \bmod 4^{h-2})$$

where $b = 2 + 4^1 + \ldots + 4^{h-1}$ and $e < 4^h$

5. A router comprising:

at least one network interface configured to:

receive port connection information associated with switches in a network; and

at least one processor configured to:

determine at least one virtual circuit path to at least one switch in the network based on the received port connection information, and

determine, for the at least one virtual circuit path, a first output port of the first node and an outgoing virtual circuit identifier (VCI_{out}) to use to send a packet from the router to a destination node in the network.

6. The router of claim 5, wherein the port connection information comprises port numbers for the switches in the network.

7. The router of claim 5, wherein the outgoing virtual circuit identifier (VCI_{out}) is determined as a function of a number of hops (h) between the router and the destination node.

8. The router of claim 7, wherein each outgoing virtual circuit identifier (VCI_{out}) for VC table entry b + e, for each value of h, is determined by:

$$VCI_{out} = 2 + 4^1 + \ldots + 4^{h-2} + ((e-b) \bmod 4^{h-2})$$

where $b = 2 + 4^1 + \ldots + 4^{h-1}$ and $e < 4^h$

9. A computer-readable medium containing instructions for controlling at least one processor to perform a method of establishing virtual circuit paths at a first node in a packet-switched network, the method comprising:

receiving, at the first node, port connection information associated with switches in the network;

determining at least one virtual circuit path to at least one switch in the network based on the received port connection information; and

determining, for the at least one virtual circuit path, a first output port of the first node and an outgoing virtual circuit identifier (VCI_{out}) to use to send a packet from the first node to a destination node in the network.

10. A method of updating a virtual circuit table associated with a first switch in a packet-switched network, comprising:

receiving port connection information associated with switches in the network;

updating previously stored information regarding locations and paths to switches in the network based on the received port connection information; and

updating, based on the received port connection information, entries in the virtual circuit table such that the first switch provides virtual circuit paths to all switches in the network within a radius of connection from the first switch, and terminating all virtual circuits that the router deems unusable due to open ports or path reversals.

11. The method of claim 10, wherein the port connection information comprises port numbers for the switches in the network.

12. The method of claim 10, wherein the virtual circuit table comprises outgoing virtual circuit identifier (VCI_{out}) entries and wherein the outgoing virtual circuit identifier (VCI_{out}) entries are determined as a function of a number of hops (h) between the first node and possible destination nodes and the sequence of port numbers.

13. The method of claim 12, wherein each outgoing virtual circuit identifier (VCI_{out}) for VC table entry b + e, for each value of h, is determined by:

$$VCI_{out} = 2 + 4^1 + \ldots + 4^{h-2} + ((e-b) \bmod 4^{h-2})$$

where $b = 2 + 4^1 + \ldots + 4^{h-1}$ and $e < 4^h$

14. A router comprising:

at least one network interface configured to:

receive port connection information associated with switches in a network; and

at least one processor configured to:

update information pertaining to locations and paths to switches in the network based on the received portion connection information, and

update, based on the received port connection information, entries in a virtual circuit table such that the router provides virtual circuit paths to all switches in the network within a radius of connection from the router.

15. The router of claim 14, wherein the port connection information comprises port numbers for the switches in the network.

16. The router of claim 14, wherein the virtual circuit table comprises outgoing virtual circuit identifier (VCI_{out}) entries and wherein the outgoing virtual circuit identifier (VCI_{out}) entries are determined as a function of a number of hops (h) between the first node and possible destination nodes.

17. The router of claim 16, wherein each outgoing virtual circuit identifier (VCI_{out}) for VC table entry b + e, for each value of h, is determined by:

$$VCI_{out} = 2 + 4^1 + \ldots + 4^{h-2} + ((e-b) \bmod 4^{h-2})$$

where $b = 2 + 4^1 + \ldots + 4^{h-1}$ and $e < 4^h$

18. A computer-readable medium containing instructions for controlling at least one processor to perform a method of updating a virtual circuit table associated with a first switch in a packet-switched network, the method comprising:

receiving port connection information associated with switches in the network;

updating knowledge of locations and paths to switches in the network based on the received portion connection information; and

updating, based on the received port connection information, entries in the virtual circuit table such that the first switch provides virtual circuit paths to all switches in the network within a radius of connection from the first switch.

19. A system for updating a virtual circuit table associated with a first switch in a packet-switched network, the system comprising:

means for receiving port connection information associated with switches in the network;

means for updating knowledge of locations and paths to switches in the network based on the received portion connection information; and

means for updating, based on the received port connection information, entries in the virtual circuit table such that the first switch provides virtual circuit paths to all switches in the network within a radius of connection from the first switch.